

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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U.S. PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte PETER PFEUFFER

Appeal No. 2005-2487  
Application 08/900,254

Before PAK, OWENS, and MOORE, Administrative Patent Judges.

MOORE, Administrative Patent Judge.

**DECISION ON APPEAL**

This appeal was taken from the examiner's decision rejecting claim 1, the only claim remaining pending in the application. Claims 2-8 have been canceled.

I. Background

The invention relates to a method of manufacturing a pleated filter material. The claim recites the one-step calendering and bonding of a non-woven material using a profiled calender roll. This is said to result in the bonding of the fibrous web having "spacers" in a "tension-free" manner without "inhomogeneities" or "flat bonding." The

resulting three-dimensional pleated structure is said to be stable and may form the basis for a filter.

A previous appeal in this application was decided February 20, 2002 as 2001-0344, by this same panel.

## **II. Waived Issues**

The examiner has interpreted several claim elements during prosecution, which interpretations the appellant has not contested in this appeal. Accordingly, we conclude that the appellant has waived the following issues of claim interpretation:

Waived Issue #1: Definition of "spacer." In the rejection of record, including the previous Examiner's Answer dated May 19, 2000 from the previous appeal (page 4, line 11), and in the present Examiner's Answer dated October 4, 2004 (page 4, third line from bottom), the examiner is, and has been throughout prosecution, reading the term "spacer" as including "pleats." Indeed, the appellant amended claim 1 to recite that the filter material was "pleated" by the claimed method. The appellant has not, so far as our review of the record reveals, challenged this interpretation of the term.

Waived Issue #2: Definition of "flat bonding." In the rejection of record and in the Examiner's Answer (page 6, last 2 lines) the examiner is, and has been throughout prosecution, reading the term "flat bonding" as including pressed areas or flat spots. The appellant has not, so far as our review of the record reveals, challenged this interpretation of the term.

Waived Issue #3: Definition of “without inhomogeneities.” In the rejection of record, and in the Examiner’s Answer (page 5, last 5 lines) the examiner is, and has been throughout prosecution, reading the term as including uniformly distributing the mixture of fibers in the sheet. The appellant has, so far as our review of the record reveals, not challenged this interpretation of the term.

Waived Issue #4: Definition of “tension-free.” In the rejection of record, and in the Examiner’s Answer (page 6 , lines 1-6) the examiner is, and has been throughout prosecution, reading the term “in a tension-free manner” as including a lack of pulling or stretching the fibrous web during calendering. The appellant has not challenged this interpretation of the term.

By accepting these definitions, we do not signal our agreement with them. Rather, we observe that the time for challenging them has long passed. Issues of claim interpretation of necessity should come first before issues of patentability. The examiner has applied a broad reading to some of these terms, and the appellant has conceded the point by not taking a contrary position.

In other words, we will not address limitations which are not argued. Appellant’s brief is required to specify the specific limitations in the rejected claims which are not described in the prior art or rendered obvious over the prior art. See 37 CFR § 1.192(c)(8)(iv) (1999). Cf. In re Baxter Travenol Labs., 952 F.2d 388, 391, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991) (“It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for nonobvious distinctions over the prior art.”); In re Wiechert, 370 F.2d 927, 936, 152 USPQ 247, 254 (CCPA 1967) (“This court has uniformly followed the sound rule that an issue raised below which is *not*

*argued* in this court, even if it has been properly brought here by a reason of appeal, is regarded as abandoned and will not be considered. It is our function as a court to decide disputed issues, not to create them."); *In re Wiseman*, 596 F.2d 1019, 1022, 201 USPQ 658, 661 (CCPA 1979) (arguments must first be presented to the Board before they can be argued on appeal).

### **III. Findings of Fact**

The record in this application supports the following findings of fact by at least a preponderance of the evidence:

**1. The claim on appeal reads as follows:**

Claim 1. A method for manufacturing a pleated filter material from a thermally bonded non-woven fabric, comprising:

forming a single fibrous web from undrawn and drawn synthetic fibers;  
pre-heating the fibrous web;

calendering the single fibrous web between non-heated profiled calender rolls in a single calendering step without subsequent re-heating, wherein during the single calendering step, the undrawn fibers in the single fibrous web are bonded in a tension-free manner between the non-heated profiled calender rolls to form the non-woven fabric, without inhomogeneities over the cross-section of the non-woven fabric and without the use of flat bonding, and wherein during the single calendering step, spacers are formed in the non-woven fabric to thereby form the filter material. (Appeal Brief, September 24, 2005, page 13, Appendix A; Examiner's Answer, October 4, 2005, page 3).

**2. The prior art references relied on by the examiner are:**

Norton (Norton)	2,862,542	Dec. 02, 1958
Gosden (Gosden)	3,616,167	Oct. 26, 1971
Yamamoto et al. (Yamamoto)	4,496,583	Jan. 29, 1985
Thornton et al. (Thornton)	4,772,443	Dec. 10, 1986
Naruo et al. (Naruo)	4,876,007	Oct. 24, 1989
Meyer (Meyer)	5,232,595	Aug. 03, 1993

Frank (Frank)	5,492,580	Feb. 20, 1996
Petranyi et al. (Petranyi)	DE 4,024,053 A1	(filed Sep. 13, 1994)
		Jan. 30, 1992

(Examiner's Answer, October 4, 2005, page 3).

3. The appealed rejection is as follows:

Claim 1 stands rejected under 35 U.S.C. §103(a) as unpatentable over Yamamoto in view of Narou and Norton and further in view of Thornton, Frank. Petranyi, and Gosden. (Examiner's Answer, Page 4, lines 7-11).

4. Yamamoto describes a method for producing a paper-like polyester fiber sheet (column 2, lines 26-27).

5. Yamamoto describes that the polyester fiber sheet may be formed from a blend of drawn and undrawn polyester fibers. (column 2, lines 64-66).

6. Yamamoto describes undrawn polyester fibers for use in the paper-like sheet which can be fuse bonded at a "low" temperature of from 110 – 200° C. (column 3, lines 17-19).

7. Yamamoto describes that the paper-like polyester sheet may be calendered, embossed, or creped. (column 5, lines 1-4).

8. Yamamoto discloses in an example that the paper-like polyester sheet is made by a "usual" paper making process and then calendered on a calender roll having a 50 cm width under a pressure of 10 tons at a temperature of 180° C. (column 8, lines 33 - end of column).

9. Yamamoto discloses uniformly dispersing the fiber blend (column 6, lines 43-49).
10. Yamamoto discloses a sheet having satisfactory properties such air permeability, tensile strength, and filtering property (column 4, lines 58-62 and column 10, lines 62-68) (see table 4).
11. Yamamoto discloses a process (examples 13-14) which does not describe reheating the sheet after calendering. (column 8, see also table 3).
12. Naruo describes that pleating a filter material has a distinct advantage in increasing effective filtration area (Naruo, column 1, lines 23-39).
13. Norton discloses the use of meshed corrugating rolls to increase filtering capacity of filter paper (col. 1, lines 20-25 and 59-60).

#### **IV. Claim Interpretation**

We initially determine what this complex claim covers. "It is the claims that measure the invention." SRI Int'l v. Matsushita Elec. Corp. of America., 775 F.2d 1107, 1121, 227 USPQ 577, 585 (Fed. Cir. 1985).

In examining a patent claim, the PTO must apply the broadest reasonable meaning to the claim language, taking into account any definitions presented in the specification. In re Yamamoto, 740 F.2d 1569, 1571, 222 USPQ 934, 936 (Fed. Cir. 1984). Words in a claim are to be given their ordinary and accustomed meaning unless the inventor chose to be his own lexicographer in the specification. Lantech, Inc. v. Keip Mach. Co., 32 F.3d 542, 547, 31 USPQ2d 1666, 1670 (Fed. Cir. 1994).

We observe that the claim is drawn to a method including:

- (1) a step of forming a single fibrous web from undrawn and drawn synthetic fibers (i.e. a mixed fiber non-woven web);
- (2) a step of pre-heating the fibrous web; and
- (3) a step of calendering the pre-heated single fibrous web
  - (3a) between non-heated profiled calender rolls
  - (3b) in a single calendering step
  - (3c) without subsequent re-heating.

The appellant's claim, utilizing "wherein" clauses and negative limitations, also states that, during the calendering step:

- (4) the undrawn fibers in the single fibrous web are bonded
  - (4a) in a tension-free manner to form a non-woven fabric
  - (4b) without using flat bonding
  - (4c) without inhomogeneities, and
  - (4d) spacers are formed in the non-woven fabric

to thereby form the filter material. (Appeal Brief, September 24, 2005, page 13, Appendix A; Examiner's Answer, October 4, 2005, page 3).

The scope of the terms "flat bonding," "spacers," "without inhomogeneities," and "tension free" are as noted above.

Keeping these claim limitations in mind, we analyze the appellant's contentions.

**V. The Prima Facie Case of Unpatentability**

The examiner has found that Yamamoto discloses **(1)** a method of forming a paper-like polyester sheet by blending undrawn polyester fibers with drawn polyester fibers, and forming a paper-like sheet from the blend. (Examiner's Answer, Page 4, lines 15-18). This disclosure is found at Yamamoto column 2, lines 26-28 and 64-66.

The examiner has also found that Yamamoto discloses fuse-bonding the undrawn fibers at a low temperature range of 110°-120° C. (Yamamoto, column 3, lines 9-21). The examiner concludes that this disclosure reasonably suggested to one of ordinary skill in the art that the undrawn fibers should be activated in some way. As there are only a few conventional and known ways (citing Thornton, Petranyi, Frank, and Gosden) to activate and calender the fibers (i.e. heating the web and using a heated/room temperature/chilled roller or not heating the web and using a heated roller) the examiner concludes that preheating the web **(2)** and cold rolling once **(3)(3a)(3b)(3c)** is an A or B design choice made by one of skill in the art. (Examiner's Answer, page 7, line 7 – page 9, line 5.) The examiner has also found that Yamamoto teaches away from reheating in that it would cause disfigurement of the finished pleated filter (Examiner's Answer, page 9, lines 6-13). The appellant agrees that this interpretation of Yamamoto is not inconsistent with his position (Appeal Brief, page 9, lines 22-24).

Relying on Yamamoto's disclosure of calendering the filter material (Yamamoto, column 5, lines 1-4), and Norton's disclosure of forming pleated filter paper by calendering a fibrous sheet using profiled calender rolls (Norton, Figures 1 and 2), the examiner concludes that it would have been obvious to one of ordinary skill in the art at

the time the invention was made to calender (3) the paper-like sheet using profiled calender rolls (3a). (Examiner's Answer, page 5, lines 9-17). The examiner observes that one of ordinary skill in the art was capable of choosing from the known methods of forming pleated filters and had an expectation of success in forming pleated filters.

The examiner has further found that neither Yamamoto or Norton disclose exerting tension on the fibrous web during a calendering/bonding operation (4a) (Examiner's Answer, page 6, lines 1-8). Whether or not this lack of exerted tension meets the limitation of "in a tension-free manner" is waived issue #4. The appellant has not challenged this finding.

The examiner has additionally found that Norton discloses avoiding pressed areas or flat spots ("flat bonding") (4b) in order to avoid adversely affecting the porosity or filtering capacity of the paper. (Examiner's Answer, page 6, lines 17-21). Whether or not this avoidance of flat spots fits within the definition of "flat bonding" is waived issue #2. The appellant has not challenged this finding.

The examiner has also found that the disclosure of Yamamoto that the blend of fibers is uniformly dispersed and the resultant sheet has satisfactory properties. The examiner has concluded that this suggests that there are no inhomogeneities (4c) over the cross section of the nonwoven fabric. (Examiner's Answer, page 5, line 18 – page 6, line 1). Whether or not this uniform dispersion of the fibers fits within the scope of "without inhomogeneities" is waived issue #3. The appellant has not challenged this finding.

Relying on Naruo's disclosure of the advantages of a pleat-type filter cartridge including effective filtration rates being increased, (Naru, column 1, lines 23-29) the examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to (4d) form a filter sheet including spacers. (Examiner's Answer, page 5, lines 1-8). Whether or not these "pleats" are within the scope of "spacers" is waived issue #1. The appellant has not challenged this finding.

## VI. The Appellant's Arguments

The appellant argues that the combination of references fails to teach or suggest "the step of calendering the single fibrous web between non-heated profiled calender rolls in a single calendering step without subsequent re-heating" (Appeal Brief, page 8, lines 26-28).

The appellant points to the various examples in Yamamoto (17-23) which use heated rollers, and urges that a subsequent reheating step may only be avoided if the roller are preheated. (Appeal Brief, page 9, lines 5-22).

This argument misses the point of the rejection – to calender and set a non-woven web or sheet, the examiner has observed that one of ordinary skill in the art would have known that the fibers must be softened, or activated. That heat can be supplied by one of two ways – by preheating the web, or heating the web through a roller. The choices in accomplishing this are severely limited (A or B)(Examiner's Answer, page 8, lines 1-2). The examiner has found that these methods are well-known to the artisan, and supported his position with four references relating to binder fibers (Thornton, col. 1, lines 45-57)(fiber web preheated; unheated rollers); (DE '053,

abstract)(web heated, cold rollers); (Frank, column 5, lines 6-43)(web heated, cold rollers, hot rollers an alternative); (Gosden, example 5)(heat web, cold rollers)(Examiner's Answer, page 8). We find no fault with this conclusion, based on the substantial evidence in this record. The appellant has not indicated why the choice of one versus the other is significant, only that the choice of one in conjunction with the step of excluding reheating is not taught or suggested.

As stated in In re Fout, 675 F.2d 297, 301, 213 USPQ 532, 536 (CCPA 1982) "Express suggestion to substitute one equivalent for another need not be present to render such substitution obvious." The examiner pointed out the two equivalent alternatives known to those of skill in the art, thus impliedly suggesting to one of ordinary skill in the art to select one from two known equivalent alternatives to activate the web.

As to the element of "without subsequent reheating," Yamamoto discloses a process (examples 13-14) which does not describe reheating the sheet after calendering. (column 8, see also table 3).

The appellant urges that Yamamoto's arrangement allows the avoidance of subsequent reheating only when the rollers are heated (Appeal Brief, page 9, lines 13-17). The thrust of the argument seems to be that when Yamamoto does not use a hot calendar roll to press the sheets, the process of Yamamoto then must require subsequent heating to dry the sheets, directly contrary to claim 1. (Appeal Brief, page 9, lines 1-18). We are not persuaded by this argument.

First, there is no evidence that subsequent reheating is necessary to dry the sheet if the web is pre-heated (choice A available to the skilled artisan). The appellant

is making a factual assumption that an additional step is required if cold rolling is used, founded only on attorney argument. Attorney argument is not evidence.

Second, the appellant's position assumes that the skilled artisan lacks skill. The skilled artisan would not engage in an additional step of reheating the web unnecessarily. We observe that the deletion or exclusion of a senseless step does not define over the prior art. See, e.g., In re Kuhle, 526 F. 2d 553, 555, 188 USPQ 7, 9 (CCPA 1975)(deletion of prior art member, eliminating its function, was an obvious expedient); In re Larson, 340 F. 2d 965, 969, 144 USPQ 347, 350 (CCPA 1965)(If additional features are not desired, obvious to eliminate the feature and function it serves). See also In re Sovish, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985) (Rejecting argument that presumes stupidity rather than skill).

Finally, the appellant has urged that the office has provided "only conclusory hindsight, reconstruction, and speculation" without evidence. (Appeal Brief, page 11, lines 19-23). We disagree. Yamamoto describes a web of the claimed type, which web can be calendered, embossed or creped, for a filter application. Naruo describes pleats as being particularly effective at enhancing filtration. Norton describes rollers which result in corrugation to accomplish the provision of pleats, also in the filter art. There are limited means of activating a web – heating the web first, or via contact with a heated roller. Reheating a finished pleated filter material would be a waste of energy, without reason for so doing.

The appellant has failed rebut these findings with any meaningful evidence or a showing of unexpected results.

As a consequence, the appellant has failed to rebut the examiner's prima facie case of obviousness.

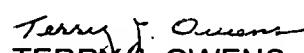
The examiner's decision, rejecting claim 1, is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

**AFFIRMED**



CHUNG K. PAK  
Administrative Patent Judge



TERRY J. OWENS  
Administrative Patent Judge



JAMES T. MOORE  
Administrative Patent Judge

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